

AMENDMENTS TO THE CLAIMS:

1. (Withdrawn) A method of fabricating a thin film transistor comprising the steps of:

forming a gate electrode on an insulator substrate;

5 forming a gate insulator film over the insulator substrate and the gate electrode;

forming an amorphous silicon film on the gate insulator film;

irradiating laser light on a surface of the amorphous silicon film to heat the amorphous silicon film, thereby forming a polycrystalline silicon film; and

10 setting energy of the laser light such that a grain size of a first portion of the polycrystalline silicon film over the insulator substrate becomes equal to or greater than a grain size of a second portion of the polycrystalline silicon film over the gate electrode.

2. (Withdrawn) The method according to claim 1, further comprising a step of defining a source and a drain of the thin film transistor in the first portion and defining a channel of the thin film transistor in the second portion.

3. (Withdrawn) The method according to claim 2, wherein the step of setting the energy of the laser light includes the steps of:

setting a maximum energy of the laser light such that grain sizes of the drain and the source become substantially equal to a grain size of the channel; and

5 setting a minimum energy of the laser light to obtain a grain size of the channel enough to provide a desired device characteristic of the thin film transistor.

4. (Withdrawn) The method according to claim 3, wherein the grain size of the channel which is enough to provide the desired device characteristic of the thin film transistor lies in a range of about 500 Å to about 20000 Å.

5. (Withdrawn) The method according to claim 3, wherein the grain size of the channel which is enough to provide the desired device characteristic of the thin film transistor lies in a range of about 1500 Å to about 20000 Å.

6. (Withdrawn) The method according to claim 3, wherein the grain size of the channel which is enough to provide the desired device characteristic of the thin film transistor lies in a range of about 3000 Å to about 10000 Å.

7. (Currently Amended) A bottom gate thin film transistor comprising:  
an active layer including a polycrystalline silicon film where a drain, a source and a channel are defined, grain sizes of the drain and source being greater than a grain size of the channel; and

5 a gate formed from a refractory metal, said gate and active layer formed on an insulating substrate, wherein the gate has a center portion corresponding to the channel and a pair of tapered end portions respectively corresponding to said drain and said source, and wherein said gate has a higher thermal conductivity than remaining portions of said insulating substrate and is operable to dissipate energy received at portions of the polycrystalline silicon film adjacent to said gate to produce said grain sizes.

10 8. (Currently Amended) A thin film transistor comprising:  
an insulator substrate;  
a refractory metal gate electrode located on the insulator substrate, wherein the gate electrode has a center portion and a pair of tapered end portions;  
5 an insulator film provided on the insulator substrate and the gate electrode; and  
a polycrystalline silicon film located on the insulator film, a channel defined in a first portion of the polycrystalline silicon film over the center portion of the gate electrode, a drain and a source defined in second and third portions of the polycrystalline silicon film over at least the insulator substrate pair of tapered end portions of the gate electrode, respectively, grain sizes of the drain and source being greater than a grain size

of the channel, wherein said refractory metal gate electrode has a higher thermal conductivity than said insulator substrate and is operable to dissipate energy received at portions of the polycrystalline silicon film adjacent to said gate to produce said grain sizes.

9. (Previously Presented) The thin film transistor according to claim 8, wherein the grain size of the channel is at least about 500 Å to provide a desired on current of the thin film transistor.

10. (Previously Presented) The thin film transistor according to claim 9, wherein the grain size of the channel lies in a range of about 500 Å to about 20000 Å.

11. (Previously Presented) The thin film transistor according to claim 9, wherein the grain size of the channel lies in a range of about 1500 Å to about 20000 Å.

12. (Previously Presented) The thin film transistor according to claim 9, wherein the grain size of the channel lies in a range of about 3000 Å to about 10000 Å.

13-17 (Canceled)